Frankly Speaking

Traffic Engineering Enlists

The exploits of U. S. Army Engineers will soon be sending thrills up and down the American spine. Reports will recite how a handful of specialists, in no time at all, threw a bridge across a stream, built a road, repaired a dam, erected a barricade—and all this while under enemy fire.

You are the engineers behind the Engineers. As this is written your personal safety has not been threatened. But shells have fallen on our home grounds.

What we do must be done *now*.

The time has come to "beat your plow share into a sword." We face new and vital duties. The war can only be won by industrial production. Uninterrupted movement of war workers and war materials is essential. The national pool of transportation facilities now has no *inlet*. Our new job is to preserve what transportation we have and to put it to the best possible use.

Dam the outlet!

CONSERVATION has suddenly become the biggest word in the traffic engineer's dictionary. Conservation of vehicles—fuel—war workers—war materials. And probably most important of all, conservation of TIME.

Fortunately, the traffic engineering profession is grounded in efficiency procedure. No right-about-face is necessary before tackling its war-time program. Only an adjustment in the focus of the Engineer's thinking is required. In war production areas the important subjects are tire and vehicle conservation, the staggering of working hours, preferential treatment of traffic essential to the war program, the most efficient employment of mass transportation equipment, and the increase in private passenger vehicle loading. These problems are a-b-c to the trained traffic engineer and he should lead in their solution. In strictly civilian areas his objectives are similar, with extra emphasis on the transportation of farm products and other raw materials which feed the mouths of men and machines. Here again conservation is the watchword. If there ever was a reason for traffic safety, surely there is a doubled reason now when manpower needs to be conserved down to the last muscle.

Paste these words in your hat; slip them under the glass top of your desk; write them on your office wall:

WILL IT HELP WIN THE WAR?

Let that be the measuring stick for everything you do—and history will record that you *did* help win the war. Society expects nothing more than that from this profession. Nothing less will serve.

D. Grant Mickle

President, Institute of Traffic Engineers

VOLUME XII MARCH, 1942 NUMBER 11

DEFENSE TRANSPORTATION PLANS FOR THE NEW YORK AREA

by ROGER H. GILMAN

CIVILIAN defense transportation is being planned on a regional basis in the New York metropolitan area. Cooperation between three states and New York City are essential for efficient transportation. Liason was established with the Army Second Corps Area Headquarters, the Regional Office of Civilian Defense and the Office of Defense Transportation. Each of these agencies is represented on the committee.

Four subcommittees have been set up within the framework of the committee to formulate plans for the following specific problems: selection and signing of a secondary highway network; emergency control of motor truck routing; emergency control of primary food distribution, and emergency transport-evacuation. From time to time, additional subcommittees have been organized to handle special assignments.

Secondary highway network plans have already been put into effect for civilian travel should the Army take over any of the main highways. The three main tasks of the first subcommittee have been the selection of the secondary highway network, the location of potential "bottlenecks" on the secondary routes, and the signing of the routes. On the subcommittee, the state highway commissioners represent two of the states and highway engineers, and the other agencies, make it possible to put the coordinated plans into immediate effect in each jurisdiction.

For each Army route extending through the New York metropolitan area, two secondary routes have been chosen, parallel and adjacent to the primary road, wherever possible. Two roads thus provide sufficient capacity to absorb the heavy civilian travel which normally uses the main routes. Furthermore, if the Army should need the best secondary highway, still another alternate highway would be available for civilians. All final route selections were adjusted so that the three states have a coordinated network and state lines will not cause a different and confusing system for the motorist traveling through the area.

Roads were selected with the object of having as few "bottlenecks" as possible. Such restrictive points as do exist on these routes—narrow pavements, congested intersections, bridges with limited strength, horizontal or vertical clearance, etc. — have been listed so that they may be corrected or indicate where special traffic control measures and regulations will be required if heavy traffic loads are diverted from the main highways. In this study attention has been given to the possibility of portable or temporary overpasses at the worst intersections, especially at locations where a secondary route crosses an Army route.

Because many of the best highways have been designated for military purposes, most of the secondary routes necessarily consist of stretches of several highways, each with a different number or no number at all. The subcommittee therefore decided that a special route number should be assigned to each secondary route in order to give the motorist as complete guidance as he would have on main highways.

Accordingly, the representatives of the states devised a special route numbering system by which the secondary routes will be assigned numbers in the

"500" series which is higher than the state numbers in any of the three states. Such numbers have been given to twenty-eight secondary routes in the area. The balance of the unused numbers in the "500" series have been allotted to the individual states for secondary routes outside the metropolitan district for which it is felt more adequate signing is needed. Wherever possible, the number has a definite relation to the existing highway numbering system, as for example, #501 parallels U. S. #1.

In order to have uniformity, the subcommittee also designed a special sign for showing the "500" number on each of the routes. The signs are 16 inches square, black letters on white background, and made of wood so that they may be installed with the least amount of delay. The legend reads from top to bottom: initials of the state; special "500" number; and the word "CIVIL" as for example, "N.Y. - 501 - CIVIL." The signs have already been erected in most of the area.

A special map showing the secondary highway network has been prepared for general use of the committee, new route numbers will be shown in a square symbol on the 1942 New York Metropolitan Maps of all the large oil companies. In addition, each state highway department is preparing detailed strip maps indicating the secondary system for the information and use of the local police authorities and defense councils.

Motor Truck Routing Another subcommittee has prepared plans for truck routing and control stations on the periphery of the metropolitan area, at which trucks bringing in supplies defense councils, publicity purposes, etc. For the motoring public, these would be stopped, should events make this necessary. After the destination of the truck has been determined, the subsequent routing of the truck will be given to the driver, depending on such factors as inability to use a certain highway or unload at a certain terminal, as a result of insufficient capacity, destruction, etc.

A central headquarters will be established in the New York City Police Department headquarters, for receiving and forwarding pertinent routing and terminal information to the stations which will then determine the

WAR PRODUCTION TRANSPORT

The APRIL issue of "TRAFFIC ENGINEERING" will be devoted largely to a summary report of the I.T.E. War Production Transportation Committee.

It will contain a discussion of methods of meeting current war production transport problems, including:

the more economic use of mass transportation facilities, through staggered hours;

the conservation of privately owned employee vehicles through club or pooling plans; and the

adaptation of traffic engineering methods to present emergency requirements.

subsequent movements of the trucks which have been stopped.

By means of trade publicity, all drivers of produce trucks were requested to stop at one of the two test stations in New Jersey, on a designated day as "dress rehearsal' for what might be necessary should the market area be put out of service. Further tests are in preparation.

Primary Food Distribution Another transport subcommittee has studied means for maintaining a continuous, adequate supply of food to every part of the area in any emergency.

It first determined the normal food requirements for each commodity and each section of the area, as well as the available reserve stocks on hand. The next step has been the listing and mapping of all strategic points such as highways, warehouses, and food terminals, which, if put out of service for any length of time, would greatly affect the normal means of food distribution. The spotting of these facilities also assists in the important task now under way, of preparing plans for swift, effective and flexible substitution between the many means of access and terminal facilities.

Emergency Transport-Evacuation A fourth subcommittee is making plans for two phases of the problem—emergency transport and evacuation. Representatives of the bus, truck, railroad and shipping industries have already surveyed the demands which would fall on them should any one of the four be rendered inadequate for handling its normal full load. The study of mobilization problems provides valuable data for any contingency requiring immediate transportation for military purposes.

The Metropolitan Defense Transport Committee has been requested by the state evacuation authorities to undertake the planning for the transportation phase of the evacuation problem, once their studies determine the possible demands. This particular subcommittee has had the inventory of transport facilities and the preparation of plans as part of its assignment.

While the Metropolitan Defense Transport Committee has no authority of its own, the members of the committee and its various subcommittees have the power to see that decisions reached at their joint meetings are actually carried out when they return to their respective jurisdictions. Thus, effective coordination has been attained, eliminating the barrier of state lines for those civilian transport problems which extend throughout the whole New York metropolitan area.

An original article by Roger H. Gilman (Jun. I.T.E.), Junior Economist, Port of New York Authority, N. Y. C.

TRAFFIC CONTROL AND NATIONAL DEFENSE

by FRANKLIN M. KREML

TODAY our states are piling up highway mileages of anywhere from 8 to 30 per cent increase over that existing two years ago, and the opportunity for accident increases by about the square of the rate of the increase of traffic. Therefore increased highway mileage is a very important factor in evaluating the problems with which we are dealing.

This emergency has developed some other by-products. As a nation we are consuming more liquor than we did two years ago.

There is still another factor resulting from this changed condition—a psychological one. It is only natural in a period such as this for drivers to adopt a "here today, gone tomorrow" attitude. This is particularly true among the lower age brackets.

Another psychological by-product

is that a great many police officials are unfortunately having their attention diverted from traffic problems.

Industrial activity and mobilization have produced considerable increase in highway congestion. In fact, we are now witnessing the greatest street and highway congestion this country has ever known.

A new level of industrial production is being attained. San Diego, California, is a splendid example. At the beginning of 1941, it was a city of 190,000 population. In 1942 it will have a population of 300,000—a 58 per cent increase in a single year. These population movements produce tremendous police problems of every type and a very severe traffic problem.

The Army will soon have more than 250,000 motor vehicles.

We still have, of course, all of the old reasons for controlling traffic effectively. The first of these is the humanitarian reason.

Let's take a look at England. More than 23,000 civilian lives were lost in air raids in 1940. Yet we lost one and one-half times that number during the same period through traffic accidents.

There are still the old economic reasons which become more and more important in this period of economic mobilization. We cannot afford to waste two billion dollars a year through traffic accidents.

New reasons are developing a need for a real national discipline. We need a disciplined, militant population. Traffic law enforcement, frankly, is one of the ways to effect that discipline.

A new reason is that we must conserve all our natural resources. In some of our key industrial plants, employees are losing ten times as many man-hours from traffic accidents as they are from work accidents.

Another reason is that raw materials move into the plant by truck, finished products move out by truck, and workers go to and come from the plant by automobile. So serious has the resulting congestion become that in some cities shifts have had to be readjusted, sometimes to the detriment of production efficiency. That was the case in Fairfield, Conn. Because the oncoming shift could not move into the plant at the same time the retiring shift was coming out, it was necessary to change materially the working hours in that plant, with a reduction in efficiency resulting.

There is still another reason for bringing traffic under effective control.

Intelligence reports made during the Battle of France by military observers stated, in effect, that the breakdown of the Belgian and French civil traffic control measures was one of the principal contributing causes to the defeat of the Allied armies. So poor was this basic system of control—so badly organized, so poorly trained were the men, so inadequate were the communications—that when this great burden of military and civilian traffic was poured upon it, it collapsed. As to how completely it collapsed, may be shown by one or two illustrations.

In one town in Belgium the traffic was in such a terrible condition it could not move, and four medical officers from an adjacent hospital were trying vainly to clear the jam at one important intersection. Two hours later a German panzer division rolled into town, over the refugees and over the French army that was defending that particular point, and within an hour after their arrival their panzer divisions were moving through the town at an average speed of 35 miles per hour. That, of course, is a very important part of the answer to German military success. They know how to handle traffic—their own traffic—and it makes them effective in a military way.

Here's another interesting sidelight.

When it was finally decided that the B.E.F. would have to be evacuated at Dunkirk, the forces started to move in a northwesterly direction but soon found they would not be able to make it. They were in danger of being cut off, because they moved so slowly and the German army so rapidly. Therefore, it was necessary for them to secure bulldozers—tractorlike machines with a device out in front for leveling the ground. They put a couple of these at the head of each column, pushing French military equipment, refugee carts, automobiles and in some cases refugees off the road and into the ditch—all necessitated by the failure of the French and Belgian police to organize themselves effectively for traffic control. As a result of these measures they arrived at Dunkirk in time, and, as you know, 80 per cent of the military force was successfully evacuated.

The best way to organize effectively for the control of military traffic is to organize for handling civilian traffic efficiently. The principles of the control methods are largely identical. With a good organization for handling civilian traffic, it is possible, as in any other phase of police work, to rapidly expand that department by using auxiliary officers or officers from other parts of the country. This is possible, provided the fundamental organization has been well conceived, well set up and with good means of communication.

The fundamental concept of a good traffic control program has not changed. It calls for a traffic division and roughly, four officers per ten thousand population or somewhere between 25 and 33⅓ per cent of the total personnel of the department. An accident investigation system should be set up. Records must be kept and we must analyze these records to determine what our program ought to be.

Finally, we need an enforcement index of at least ten.

There must also be a close coordination among all agencies—engineering, education and enforcement.

In conclusion, efficient traffic control has a relation to democracy.

Most of our citizens—particularly our first generation citizens — learn nearly everything they know about our government and how it operates from the traffic policeman, the traffic prosecutor and the traffic court. If the traffic policeman is incompetent, if the prosecutor is cynically indifferent, if the judge lends himself to a policy of ticket-fixing and special privilege; then many of our citizens conclude that this is not a government of the people, by the people and for the people.

Condensed from a paper given before Western Society of Engineers by Franklin M. Kreml (Affil. Mem. I.T.E.), October 31, 1941.

WHAT ENGINEERS CAN DO

THE present emergency requires special application of Traffic Engineering measures and the National Safety Council's Committee on Traffic Safety Engineering has prepared the following emergency measures to guide city, county, and state engineers in handling their traffic engineering problems:

Identify locations that are developing high accident experience.

Watch for impending traffic changes and anticipate the resulting accident problems.

Apply such physical improvements as the following:

a. Install, redistribute and/or readjust signals and signs.

b. Remove view obstructions and eliminate or clearly mark all roadway constrictions.
c. Repair defects in the roadway, shoulders, structures and sidewalks.
d. Install or improve lighting at intersections, at plant entrances, through underpasses, and at other points having special night hazards.
e. Install sidewalks along roads or streets having many pedestrians.
f. Select and mark alternate routes for by-passing through traffic.
g. Close all unnecessary road or driveway entrances on major highways.

Where physical changes are not feasible or sufficient, apply and post such emergency regulations as the following:

a. Post special speed limits where present speeds are not appropriate.
b. Mark zones where passing or crossing the center line is dangerous.
c. Prohibit or restrict parking or standing of vehicles along congested sections of important streets and at other critical points.
d. Establish through highways, one-way streets, and/or special lanes for unbalanced movements.
e. Limit heavily traveled strategic roads to essential traffic.
f. Prohibit dangerous turning movements.

Plan adequate off-street parking lots at business, industrial, military and housing centers. Plan entrances, exits and parking assignments for least confusion in entering and leaving such lots.

Arrange for staggering of working hours and adjustment of mass transportation schedules.

Arrange for prompt execution of parts of long range road construction programs.

Check all road construction plans to insure adequate capacity and the avoidance of hazards.

Prepare specifications for use of substitute materials in signs, signals and markings.

In areas where blackouts may occur, provide and adapt traffic control devices and regulations for blackout conditions.

Study the possibility of strategic roads being blocked by disasters or taken over for exclusive military use and plan alternate routes for essential civilian use.

In addition to the above the National Safety Council has just issued the following valuable pamphlets in the Traffic Accident Emergency program: Commercial Vehicle Safety; Public Safety Education; The Traffic Court.

PARKING METERS

by F. T. FOWLER

PARKING meters are used by 43 of the 92 cities of 100,000 or more population, and 251 cities of all sizes are using meters. Meters have been abandoned by at least 24 cities, of which four or more later re-installed them. Only two large cities have removed meters after a trial, and both removals followed adverse court decisions. Speaking generally, it may be said that cities have been supported by the courts in their use of parking meters except in those cases where the evidence indicated diversion of funds to non-traffic purposes. The charging of a fee to defray the cost of parking and traffic control has been upheld in numerous court decisions.

Parking meters should be installed only after an intelligent study of pre-

vailing parking conditions, congestion, off-street parking facilities and enforcement activities. If a study shows that long-time parking prevails in the retail, banking or central business area, that double parking is frequent, that cruising in search of a parking place is a major factor in the congestion problem, parking meters may be a partial solution. However, the enforcement practices should be scrutinized first to learn whether a lack of proper enforcement is the seat of the trouble. Parking meters are not a substitute for enforcement, and they proved unsuccessful in one California city because the city council thought the meters would enforce themselves. On the other hand, meters require a smaller number of officers for enforcement of a given area than is necessary without them, and no additional officers may be needed in order to provide good enforcement in an area which is inadequately patrolled without the meters. The one-street town which has adequate parking space available on sidestreets immediately adjacent to its business center has no warrant for parking meters unless they are to be used primarily for the purpose of discouraging parking on the main street as an aid to traffic movement. Such a purpose would be more effectively accomplished by parking limits or prohibition.

There are a number of factors which are essential to any parking meter installation. The press, the public and a majority of the business men in the area affected must be favorable or at least open-minded. Selection of a reliable meter is basic. Stalls should be well marked, adequate space should be provided at each stall and the parking time should be clearly marked at each meter. The parking time designated in a given district should be in keeping with the demands of the district served and its traffic generators. The district covered by meters must be selected on the basis of actual warrant. Adequate enforcement and a cooperative attitude toward the meters on the part of the police are necessary. Parking violations must be enforced. Portland conducted two surveys of parking conditions to learn whether the meters have actually increased parking turnover. One was in 1938, shortly after the meters were installed, and the second was in 1940. In the 1938 survey, enough manpower was available to watch each meter space throughout the day in the entire one-hour metered area. It was found that average time cars were parked was 26.8 minutes, and that 1.39 cars used each meter space, on the average, per hour. Fifty-six per cent of those parking dropped nickles in the meters while 44% parked free. Average parking cost was about 2.7 per car. Only 5.2 % of all cars overstayed the one-hour limit.

The 1940 survey, taken by a process of sampling since we lacked the manpower for a complete check provided similar results although the turn-over which this survey indicated was less because a check was made at each meter only at 15-minute intervals so that many short time parkers were missed entirely. Nevertheless, 39.1% of all cars checked stayed for less than 15 minutes; the average parking time was 41.7 minutes, and averages of 1.2 cars were noted at each meter per hour. It was found that 15.3% of the cars checked stayed more than one hour but only 3.5% stayed more than two hours. An average of 11 cars used each space in the nine-hour day in which the meters were in operation.

This survey also included a similar check on parking in the one-hour parking district immediately outside the metered area. The metered and unmetered districts which were compared, receive practically identical enforcement coverage. It was found that

an average of only 6.7 cars were able to use each space in the unmetered district in the nine-hour period. More than one-third of all cars parked in the area without meters stay for more than one hour, and over 10% of them stay longer than two hours. Average parking time was found to be 63.7 minutes, or about 50% greater than in the metered area. These surveys prove conclusively that the meters have resulted in greater parking turnover and greater availibility of parking space in our central business district.

Parking lot and garage operators in Portland were rather skeptical of meters at first. However, they now are favorable because the meters have driven the all-day or long-time parker off the street and onto off-street parking facilities. Short-time parkers no longer use the parking lots to the extent that was necessary prior to the meter installation. The revenues have provided for making a number of badly needed improvements in the traffic and parking control system.

The ordinance specifically restricts all collections, after payment for the meters and collection and maintenance costs thereof, to expenditures for the purposes of "regulation, enforcement, control, engineering and construction in connection with vehicular and pedestrian traffic within the city." The funds have been used for the following purposes: Parking control, traffic control and betterments, special projects. Installation of the fixless tag system was originally financed from parking meter funds; however, the city attorney later ruled that this was not a proper use of the meter revenues and the cost was shifted to the general fund.

Most of the added cost of installing the "Kreml" plan of selective enforcement and accident investigation has been met with parking meter funds. This has included payment of the salaries of 28 police officers who are on enforcement and accident investigation, the expenses of International Association of Chiefs of Police in installing the program, and purchase of automobiles, motorcycles, cameras, two-way radios, sirens and other equipment.

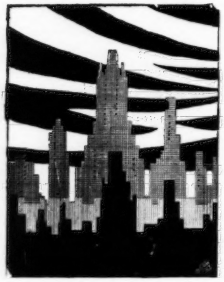
The entire cost of establishing and operating the Portland Traffic Safety Commission, which is conducting an active safety education program and acting as the coordinating agency between all interests concerned with traffic safety in city of Portland is supported by parking meter funds.

Curb parking control of course isn't the final answer. More and more those of us in traffic control work are going to find it incumbent upon us to see that the public is served with off-street parking arranged in such a manner that a far higher quality of service is rendered than is the case with most of the haphazard lots and garages found in most cities.

The city of the not far distant future probably will provide off-street parking in multi-story, open garages for the accommodation of long-time shoppers, theater-goers, all-day parkers and the like. Such accommodations may be financed and operated either privately or under local government, or by some combination of public financing with the accommodations under lease to private operators. In any event, the motorist alone cannot be expected to pay the whole bill for providing these facilities; business firms in the downtown areas must be expected to pay a fair share of the cost of providing the parking space.

Curb parking at the same time, probably will be controlled by parking meters to accommodate short-time parkers and service vehicles.

Condensed from an article by F. T. Fowler, Traffic Engineer of Portland, Oregon in 1941 Proceedings, Western Safety Conference.



Stop, Look and Listen

CORRECTION

The name of Harry H. Harrison was inadvertently omitted from the list of officers of the Institute of Traffic Engineers in the 1941 PROCEEDINGS. Mr. Harrison's name should replace that of Harold F. Hammond as a member of the Board of Direction.

ARMY EDUCATION

The Provost Marshal General's School located in Arlington Cantonment, Virginia, has prepared a curriculum designed to provide a well-balanced and uniform training course. The initial class consisting of 223 officers, selected from Military Police organizations, began their training on the 2nd of February, inaugurating a course of education unique in the history of the United States Army.

The Traffic Control course is under the direction of Lt. A. R. Forster, formerly Director of Training at the Northwestern University Traffic Safety Institute. Members of the I.T.E. who are cooperating are Lt. Robert S. Holmes, assistant to Lt. Forster, Frank M. Kreml, Harold F. Hammond, Theodore M. Matson, Capt. Paul Ristroph, and Capt. Harry D. Kamy.

IN THE NAVY

Roger H. Gilman (Jun. I.T.E.) has received a commission as Ensign in the Naval Reserve, assigned to the Bureau of Ordnance. On February 24 he reported for active duty to the naval training school, Fort Schuyler, New York City.

FBI WAR TRAFFIC SCHOOLS

The following I.T.E. members — George Barton, Donald Berry, James Darrell, Henry Evans, Dwight McCracken, Virden Rittgers, Wilbur Smith, Robert Swain, Joe Wehmeyer— constitute part of a staff of 26 FBI War Traffic Instructors who are conducting traffic training short courses for police in approximately 120 cities between February 9th and April 4th.

Instructors Jerome S. Hardy and George F. Laing gave the Providence Short Course before enthusiastic police officials, auxiliaries and engineers from throughout the State of Rhode Island.

Emphasis was laid upon the Nature of the Emergency Problem; Wartime Traffic Problems resulting from blackouts, air raids, evacuations, etc.; Military Movements including types of motor marches, planning and execu-

tion of motor marches, coordination of military and civilian officials, information needed, military traffic rules, and duties of military police; and finally a War Production Control Plan which contained criteria for police personnel equipment, methods of relieving traffic by staggering hours, traffic routing, control devices, mass transportation, scheduling, eliminating bottlenecks, etc.

Examples of experience in England and application in the U. S. were freely given and illustrated with moving pictures.

This course was well organized and the large amount of information given was systematically presented by the Instructors so that serious traffic administrators came away with a War Traffic Plan simple in design, detailed, flexible and *Capable of Execution.*

MASKING SIGNALS

Fred W. Fisch (Assoc. I.T.E.), Director of the Bureau of Traffic and City Planning of Schenectady, New York, herein reports the results of a series of studies and observations of the recommended devices and practices for restricted lighting under nightly blackout conditions.

These studies were completed in collaboration with representatives of the Lighting Division of the New York Power and Light Corporation, the Illuminating Laboratory of the General Electric Company and the Electric Company having the contract for traffic signal maintenance.

All conclusions reached are subject to future regulations prescribed by military authorities and the collaborators request than any investment in labor and materials to meet their findings be deferred until acceptable standards are set up by the War Department.

For blackouts of short duration occurring at occasional intervals a suitable patrol be established to turn off traffic signal lights within the interval of time allowed to obtain a complete blackout and that all vehicles, except emergency vehicles equipped with desirable restricted lighting, be required to park at the curb with lights extinguished.

For nightly blackouts, traffic signals with half masked lenses which were found satisfactory for normal day time operation, could be readily switched to a predetermined reduced voltage, thereby obtaining a reduction in brightness and an area of ground illumination that would meet the standards established by military authorities.

A few brief tests of motor vehicle headlights showed that the use of a dim white light offered the most desirable form of restricted lighting. The reduced brightness could be obtained through a new type of standard headlamp bulb or through the use of hoods with the light opening designed, located and shielded with a visor so that the light distribution and intensity would meet accepted standards.

Consideration was given to full screening of the traffic signal lenses by the use of cylindrical sheet metal hoods which slipped over existing traffic signal visors. This method was deemed undesirable and impractical because the ground illumination with signals at full strength was in excess of that recommended, and because the hood extensions provided poor visibility for pedestrians. Also the wind pressure might cause excessive strain, and a great expense would be incurred. It was found that the hood tended to spot light objects, therefore becoming a hazard.

A few observations were made of the intensity of illumination from traffic signal lights when the lenses were covered with thin paint films. This method was disregarded because

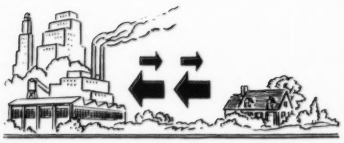
MOVE MORE TRAFFIC FASTER WITH TRIPLE-RESET CONTROLLERS

WHAT appears to be lack of street capacity often turns out to be lack of proper traffic control. With increased employment in vital industries and more trucking than ever before, streets that were all right under ordinary conditions suddenly develop traffic jams. Accidents skyrocket, war workers are late to their jobs, motorists grumble, and gasoline and rubber are wasted by stop-and-go driving.

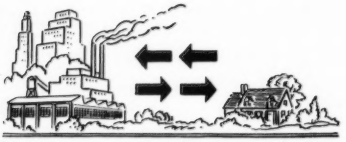
Here's where triple-reset controllers (Type DR) can be of real service. By providing three different schedules of co-ordinated timing, they make it possible to move inbound-peak traffic, normal traffic, and outbound-peak traffic on any arterial street more efficiently. Manual control or time-switch control with week-end feature, both with a master timer, can be used to select any one of the three predetermined schedules of green-light lag.

Triple-reset control has added new traffic capacity in many cities. It's more than probable that, upon analysis, you'll find it can do the same for yours.

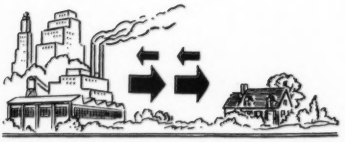
A G-E specialist will co-operate with you in the solution of any traffic-control problem you may have. Why not have the benefit of his experience? You can, just by getting in touch with our local office. General Electric, Schenectady, N.Y.



1. During morning peak-traffic hours the master timer selects the inbound reset that favors movement toward the business and factory area. "More green" moves more inbound traffic faster with but slight delay to the lighter outbound movement.

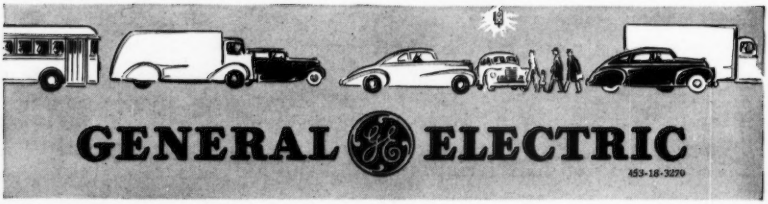


2. During the normal part of the day, signals operate on an average sequence to move traffic with smooth progressive flow in both directions.



3. To handle afternoon and early-evening peak traffic the master timer selects the third schedule of co-ordinated timing—a green-light lag that speeds up the outbound movement.

General Electric and its employees are proud of the Navy award of Excellence made to its Erie Works for the manufacture of naval ordnance.



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Western Distributors and Mfrs.

many difficulties were presented in attaining a uniform surface brightness.

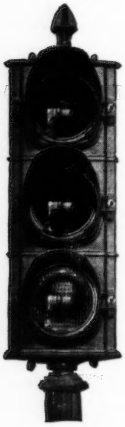
Tests were made of opaque maskings with the cross in upper half of lenses. It was found that this method was unsatisfactory because of high ground illumination and loss in effective strength during normal days.

It was believed that a satisfactory result might be obtained through masking the lower part of the lense to a point slightly above the horizontal center, and then operating the lamps at a reduced voltage. Provision for obtaining various voltages was made by connecting a variable rheostat to the circuit feeding the lamps.

It was found that by masking lower portions of lense, the light dispersion was eliminated. The light from the remainder of the lense was largely shielded by the visor and intensity was controlled by resistance referred to.

Tests made during the Schenectady trial blackout indicated that a reduction to approximately 32 volts gave sufficient brightness without objectionable ground illumination. The observer in a plane travelling 175 miles per hour at 1,500 feet on a line approximately 1,000 feet north and parallel to the street on which the signal was located, was unable to detect any sign of illumination. Other signals operating on full voltage were readily discernible.

ELECTRIC SIGNALS

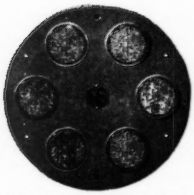


Standard signals adapted for all types of mounting. Synchronous and induction control mechanisms and accessory devices.

REFLECTOR SIGNALS

When signs are not enough or expense is a factor, reflector signals keep down both cost and accident rate.

8″; Six 1⅝″ Stimsonites



15″; Six 3″ Stimsonites

REFLECTOR SIGNS

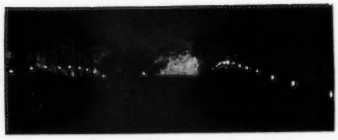
Large Stimsonized and standard reflector button signs for all traffic conditions.

72″ SIGN
18″ LETTERS

24″ SIGN
6″ LETTERS

DELINEATORS

Reflector Delineation gives essential road information after dark at daylight distances. The alignment and driving limits of the road are outlined by a channel of light.



SIGNAL CORPORATION SS SIGNALS SERVICE ELIZABETH, N. J.

TRAFFIC ENGINEERING NEEDED IN AMERICA'S VICTORY PROGRAM

Speaking before the Fourth Annual Southern Safety Conference in New Orleans, Harold F. Hammond (Mem. I.T.E.) stated:

"Motor vehicles, streets and highways are vital to war production, civilian protection and military activities. To keep traffic moving smoothly and safely has become a major objective of those directing our victory program. . . .

"With the country at war traffic engineers are doubling their regular activities and giving special attention to:

War inventories of emergency traffic signs and other materials on hand.

Preparation of special spot and route maps showing war production plants, traffic bottlenecks, major truck, bus and worker routes.

Initiation of carefully prepared preventive maintenance program for traffic control devices to meet the shortage in materials.

Relocation and readjustment of existing traffic signals and other devices to meet the shifting traffic loads and shortage of materials.

Sources of up-to-date traffic facts and special help on new and emergency traffic problems.

"Traffic engineering tools being applied today with great effectiveness are: pavement markings, signs, signals and islands. Also, the provision of parking restrictions or prohibition, turn and movement restrictions, one-way streets, throughways, limited ways and staggered working hours.

"In the last analysis, every dollar spent on bona-fide traffic engineering improvement will return dividends a thousand-fold in time saved and accidents prevented. Throughout the duration of this war, we cannot afford either to lose time by delaying production, or to disable our war production workers through traffic accidents. Every dollar we put into intelligently applied traffic engineering is an investment for *Victory*."

MOVING DEFENSE GOODS THROUGH CITY STREETS

Municipalities throughout the nation are finding new problems of management arising from the rapidly expanding defense manufacturing plants; problems of housing; of furnishing labor; and of preventing the new and expanded plants from disrupting the daily life of the community.

Fully as important as housing the workers is the problem of moving the traffic that flows to and from each defense plant. Government assistance has been given to roads leading to new plants, and many communities have been called on to widen streets and divert ordinary traffic so that the business of building for defense may continue uninterrupted.

Many raw materials are being shipped by rail, but a large volume of increased truck traffic has also resulted. This increase in trucks moving materials, added onto the volume of motor cars used for the transportation of workers along the streets and highways, has created traffic problems in almost every city where defense manufacturing is booming. According to city officials, these problems are caused by two factors: first, the increased number of vehicles engaged in defense transportation, and secondly the increased size of the trucks and trailers being utilized.

A blanket order favors raw-material deliveries to manufacturers of heavy (10½ ton up) trucks, trailers and buses. As this is right and necessary, the first problem of the city governments is to help this stream of trucks through or around the outskirts of the city with least delay.

The majority of large cities prohibit trucks from boulevards and parkways. All that is necessary is the installation of suitable signs, and the advantages are better organized traffic and less noise. However, in many smaller cities, towns and villages, there is no choice but Main Street.

What can the towns and cities of the country do to assist the movement of all these goods and workers along with other essential traffic? Under any circumstances the municipal authorities would naturally desire to do this, merely to avoid traffic jams and to help their civilians in going about their business and pleasures. Obviously the only way to help is through traffic facilitation. *The American City* listed ten easily applied physical factors which facilitate traffic flow and asked a representative list of cities to number these factors in accordance with their experience in speeding street transportation.

Stop-and-Go signals are the most important factors in keeping the traffic flow on the move, according to the city officials responding to this questionnaire.

Parking meters are second in importance.

Police automobiles and motorcycles for convoying troop movements were listed as the most important factor in expediting traffic due to defense, by fourteen cities, several of which emphasized the advantages of two-way radio. Five of the cities named police motorcycles as most important of all the factors.

The streets are considered part of the nation's production line by many city officials. As one eastern executive pointed out, "unless the delivery of parts from subcontractors is carried out efficiently, volume production suffers." A great many defense plants today depend on subcontractors for essential parts. One Brooklyn, N. Y., factory estimates that one truck load of parts for this assembly line arrives each ten minutes of the working day. In every case where subcontracting is practiced, delays on the highways may cause delays in the factory-assembly line.

Mass transportation, including the carrying of defense workers, also was recognized. Seven cities placed buses first.

Waterbury, Conn., remarked that "better illumination tends to freer traffic flow," Latrobe, Pa., and Paterson, N. J., made street lighting the No. 1 factor; Akron, Ohio, made it No. 2; Tyrone, Pa., Mount Vernon, Ill., Nyack, N. Y., San Diego, Calif., and Wilmington, Del., made street lighting No. 4; 13 cities made it No. 5. "Street lighting will substantially reduce losses due to night accidents and increase the efficiency of night transportation," says Cleveland.

"Let there be trucks!" ordains Roy H. Compton of *Motor Transportation*. "Make no mistake about it; if you haven't noticed the prevalence of trucks, you will. The best contribution which the municipalities can make to all these and more motor-transport trucks is to take 'em in their stride. To do this, every town and city must be encouraged to equip (1) its arteries and business thoroughfares with parking meters, traffic signals and signs, street lights; (2) its police with radio motorcycles and cars; (3) its local passenger transportation with modern buses, trolley coaches and streetcars. These devices which facilitate the deliveries of defense materials to factories, plants, terminals, and users would appear to be in the same priority category as the trucks which deliver the goods."

To maintain even the present degree of safety on the city streets, where the crowds are, requires the ready availability of traffic-safety devices.

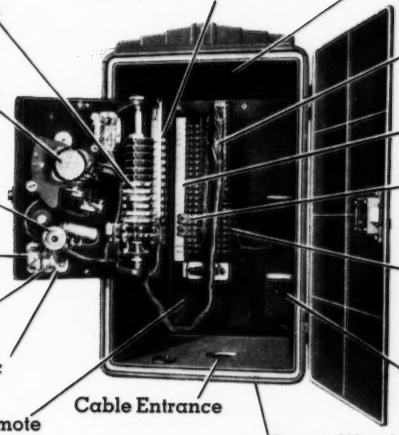
Condensed from *The American City*, Feb., 1942.

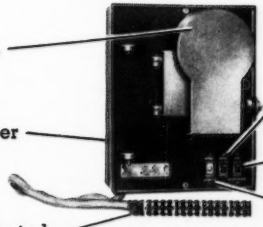
CROUSE-HINDS TYPE GS-3 CONTROLLER

15 Circuits, 16 Intervals

Non-Interconnected, Future Interconnected and Connected Operation

EVERYTHING ACCESSIBLE





TIMER ONLY

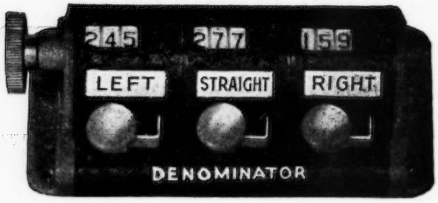
CROUSE-HINDS COMPANY

SYRACUSE, N. Y., U. S. A.

CH705

TRAFFIC COUNTING SIMPLIFIED WITH NEW TRAFFIC COUNT DENOMINATOR

Illustration of 3 unit Counter, classifying directions of travel



Other models with from 1 to 12 classified counting units mounted in horizontal line.

By simply pressing key one count is recorded in classified counting unit controlled by that key.

Touch method employed permitting operator to keep eyes on road at all times.

Quick reset returns all counting units to zero.

Counting units may be classified to represent direction of travel, different types of vehicles, state license plates, and other important classifications in traffic planning.

Now in use by City, County and State Highway Departments throughout the U.S.A.

Quick . . . Accurate . . . Efficient.

— WRITE FOR CATALOGUE —

THE DENOMINATOR CO., Inc. - 261 Broadway, N. Y. City

NEW RESPONSIBILITIES

Mr. Joseph B. Eastman, Director of Defense Transportation, has recently been appointed to the War Production Board and is in full control of all priorities, rationing and allocations which affect motor vehicle transportation pertinent to the war.

MODERN DESIGN

Mr. Charles M. Noble, Chief Highway Engineer, War Department, Arlington, Virginia, in commenting on Milton Harris' paper in the Proceedings of the A. S. C. E. entitled, "Traffic Engineering as Applied to Rural Highways," strongly encourages studying the physical and mental characteristics of motorists to produce functionally designed highways and cautions engineers about subscribing to the theory that enforcement can be relaxed when modern design is provided. In fact, Mr. Noble says that to feel that engineering can solve all traffic problems is far from the case and that modern highway engineering and enforcement should function in unison.

ON THE SHELF

A HANDBOOK ON URBAN REDEVELOPMENT FOR CITIES IN THE UNITED STATES, Federal Housing Administration, Washington, D. C., 1941, 100 pp., price 15c.

DEFENSE TRAFFIC PLAN FOR SEATTLE by Maxwell N. Halsey.

DESIGN OF SIGN LETTER SIZES by Adolphus Mitchell and Theodore W. Forbes in Proceedings A.S.C.E., Jan. 1942, pp. 95-104.